UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _09 February 2009_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-14_ is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-14_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some * c) ☐ None of:

         1. ☐ Certified copies of the priority documents have been received.

         2. ☐ Certified copies of the priority documents have been received in Application No. _____.

         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1 – 14 are pending in the application.

Response to Arguments

2.   Applicant's arguments with respect to claims 1-14 have been considered but are

moot in view of the new ground(s) of rejection.

Claim Objections

3.   Claims 1-14 are objected to because of the following informalities:

a.   Claim 1, line 11, the recitation of "said computing" should be "said

computer";

b.   Claim 1, line 13, claim 7, lines 2-3, the recitation of "said stored

asynchronous commands", should be "said stored sequence of asynchronous

commands";

c.   Claim 2, line 4, the recitation of "storing of a sequence", should be "storing

said sequence";

d.   Claim 3, line 3, the recitation of "application", should be "at least one

application";

e.   Claim 4, line 3, the recitation of "application", should be "corresponding

application";

f.   Claim 5, line 2, and claim 14, line 1, the recitation of "said step of storing",

should be "said storing of said sequence of asynchronous commands";

g.   Claims 6 and 13, line 1-2, the recitation of "said step of providing involves said commands", should be "said providing said sequence of asynchronous commands involves said asynchronous commands";

h.   Claims 6 and 13, line 3, the recitation of "said sequence", should be "said sequence of asynchronous commands";

i.   Claim 8, line 1, the recitation of "said step of implementing", should be "said implementing said stored sequence of asynchronous commands";

j.   Claim 9, line 2, the recitation of "privileged level is that of the Interrupt Service Routine, whereby the delay ", should be "privileged mode level is that of Interrupt Service Routine, whereby delay ";

k.   Claim 10, line 1, and claim 12, line 2, the recitation of "real-time", should be "real time";

l.   Claim 11, line 2, the recitation of "said sequence of commands process the same data set", should be "said sequence of asynchronous commands process same data set".

m.   Appropriate correction is required.

Claim Rejections - 35 USC § 112

4.   **Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

5.   The claim language in the following claims is not clearly understood:

        a.   As per Claim 1:

                i.   Lines 8-9, it is uncertain how said at least one application provides said sequence of asynchronous commands. (i.e. providing is equivalent to executing a system call, Examiner suggests amending the claim as follows: providing from said at least one application said sequence of asynchronous commands, wherein said providing involves said asynchronous commands being pushed one at a time into said sequence of asynchronous commands through a system call).

                ii.   Lines 13-14 it is not clearly understood what is meant by implementing one at a time each of said stored asynchronous commands. (i.e. implementing is equivalent to executing; Examiner suggests amending the claim as follows: executing one at a time each of said stored asynchronous commands).

        b.   Claims 2-14 did not cure the deficiencies of claim 1.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   **Claims 1 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dingwall et al. (hereinafter Dingwall, previously cited) (U.S. Patent No. 5,903,752) in view of Leavy et al. (hereinafter Leavy).**

8.   **As to claim 1**, Dingwall teaches a computer system, a method for providing improved real time command execution in a non real time operating system, comprising:

executing at least one application at a user mode level of said computer system (WINDOWS™ Applications, 22, Fig. 2);

providing from said at least one application said sequence of asynchronous commands (software interrupts generated by WINDOWS™Applications wishing to communicate with Application-specific Tasks, col. 4, lines 14-16, made up of events) to be executed in real time (Virtual Device Driver (VxD), 28, Fig. 2, supports real-time multi-tasking, col. 3, lines 46-47);

storing said sequence of asynchronous commands in a command queue (real time tasks, 34, Fig. 2 and RT Event 36, Fig. 2) to be accessible from a privileged mode level of said computing system (Virtual Device Driver (VxD), 28, Fig. 2, run at most privileged level col. 3, lines 36-37); and

implementing one at a time each of said stored asynchronous commands (task executes until complete in interrupt mode, col. 5, lines 7-9). Dingwall does not specifically disclose at least one application at said user mode level determine a sequence to be followed for a set of asynchronous commands.

9.   However, Leavy teaches an application at said user mode level (application

235a, Fig. 3) determine a sequence to be followed for a set of asynchronous commands

(i.e. set up tasks, col. 3, lines 60-63 and col. 5, lines 8-17).

10.   It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to modify the invention of Dingwall to incorporate the features of

Leavy. One of ordinary skill in the art would have been motivated to make the

combination because this allows a real-time media driver within a non-real time

environment establish and control real-time transmissions of a plurality of media

streams between the multi-media application programs and a media hardware device

(col. 2, lines 39-44 of Leavy).

11.   **As to claim 2**, Dingwall teaches wherein a plurality of sequences of

asynchronous commands is provided (software interrupts generated by

WINDOWS™Applications wishing to communicate with Application-specific Tasks, col.

4, lines 14-16, made up of events), each sequence being related to a corresponding

application thread (task), further wherein said storing of a sequence of asynchronous

commands is performed in a corresponding queue (real time tasks, 34, Fig. 2 and RT

Event 36, Fig. 2) from the execution of said corresponding application thread queue (RT

Task execution mode, Fig. 9).

12.   **As to claim 3**, Dingwall teaches wherein a synchronous (real-time) command is added to said sequence of asynchronous commands, said application sleeping (application task is asleep (dormant/locked) until interrupted, 818, Fig. 8) until said synchronous command is executed (RT Scheduler 30, Fig. 2, releases scheduling lock which allows real-time tasks to pre-empt the current (asynchronous) process, col. 3, lines 59-61).

13.   **As to claim 4**, Dingwall teaches wherein a synchronous command is added to said sequence of asynchronous commands, said application thread sleeping (application task is asleep (dormant/locked) until interrupted, 818, Fig. 8) until said synchronous command is executed (RT Scheduler 30, Fig. 2, releases scheduling lock which allows real-time tasks to pre-empt the current (asynchronous) process, col. 3, lines 59-61).

14.   **As to claim 5**, Dingwall teaches wherein said non real time operating system is MICROSOFT WINDOWS™ (environment of WINDOWS™, col. 3, lines 33-34) and said step of storing is performed through execution of a driver routine from a DLL file (Virtual Device Driver (VxD) is dynamic link library (DLL), col. 3, lines 33-36).

15.   **As to claim 6**, Dingwall teaches wherein said step of providing involves said commands being pushed one at a time into said sequence through system call (interrupt occurs which causes the processor to switch to VxD interrupt mode and

execute RT interrupt handler 32, Fig. 2, col. 4, lines 51-23, RT interrupt handler 32, Fig.

2, wake up associated real-time task).

16.   **As to claim 7**, Dingwall teaches wherein one of said stored commands is a

branch command to control the order of execution of said stored commands (RT

scheduler 30, Fig. 2, schedules task preemptively by priority and allows interrupt

handlers 32, Fig. 2, to make real-time tasks ready for execution without preemption, col.

3, lines 54-62).

17.   **As to claim 8**, Dingwall teaches wherein said step of implementing is done at a

different privileged mode level system (Virtual Device Driver (VxD), 28, Fig. 2, run at

most privileged level col. 3, lines 36-37).

18.   **As to claim 9**, Dingwall teaches wherein said different privileged level is that of

the Interrupt Service Routine (Virtual Device Driver (VxD), 28, Fig. 2, which is interrupt

driven, runs at most privileged level col. 3, lines 36-38), whereby the delay between the

execution of successive commands is minimized (improves real-time response col. 2,

line 49-50).

19.   **As to claim 10**, Dingwall teaches the wherein said non real-time operating

system is MICROSOFT WINDOWS™ (environment of WINDOWS™, col. 3, lines 33-34).

20.   **As to claim 11**, Dingwall teaches wherein said sequence of commands process

the same data set (task needs to process data in buffer stored by audio/video device,

col. 4, lines 59-60).

21.   **As to claim 12**, Dingwall teaches wherein said same data set is a video camera

image being captured and processed in real-time (task needs to process data in buffer

stored by audio/video device, col. 4, lines 59-60)(example task used to perform capture

or playback of audio/video, col. 4, lines 5-6).

22.   **As to claim 13**, Dingwall teaches wherein said step of providing involves said

commands being pushed one at a time into said sequence through a system call

(interrupt occurs which causes the processor to switch to VxD interrupt mode and

execute RT interrupt handler 32, Fig. 2, col. 4, lines 51-23, RT interrupt handler 32, Fig.

2, wake up associated real-time task).

23.   **As to claim 14**, Dingwall teaches wherein said step of storing is performed

through execution of a driver routine (Virtual Device Driver) from a system file (Virtual

Device Driver (VxD) is dynamic link library (DLL), col. 3, lines 33-36).

CONTACT INFORMATION

24.   The prior art made of record on the accompanying PTO-892 and not relied upon,

is considered pertinent to applicant's disclosure.

25.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to KimbleAnn Verdi whose telephone number is (571)270-

1654. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm EST..

26.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571)272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

27.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KV
April 24, 2009

/Li B. Zhen/
Primary Examiner, Art Unit 2194